

## Showcase Europe: Energy Guide for Kazakhstan

### Statistical Information

#### Primary Energy Consumption (Mtoe)

1999	Mtoe	Percentage
Coal	17.95	42.5
Petroleum	9.26	21.9
Natural Gas	11.2	26.5
Hydro	3.79	8.9
Nuclear	-	
Renewable	-	
TOTAL	42.2	100.0

### 1 Evaluation of Sector – Electrical Power Systems, Oil & Gas Field Machinery and Services

- |    |   |   |
|----|---|---|
| A) | Priority given by the host government to energy development<br>(on a scale of 1-low to 5-high)                    | 5 |
| B) | Country's receptivity to U.S. products & services:<br>(on a scale of 1-low to 5-high)                             | 3 |
| C) | Competition for U.S. exporters from local domestic suppliers<br>(on a scale of 1-heavy to 5-little)               | 4 |
| D) | Competition for U.S. exporters from third-country suppliers<br>(on a scale of 1-heavy to 5-little)                | 1 |
| E) | Overall Effect of trade barriers on U.S. exports of products and services<br>(on a scale of 1-severe to 5-little) | 2 |

### II Narrative Information

#### Electric Energy Production & Distribution

Electricity Production, 2000

2000	Installed capacity MW	Production GWh
Thermal	16,063	44,092
Hydro	2,298	7,543
Total	18,361	51,635

Electricity Production, 1999

1999	Installed capacity MW	Production GWh
Thermal	16,741	39,895
Hydro	2,265	7,602
Total	19,006	47,497

#### Electricity Consumption, 1999-2000

	1999 GWh	2000
Energy Industries	6,304	6,914
Industry	32,341	33,282
Agriculture	2,293	2,649
Construction	267	295
Domestic	5,708	6,906
Services	1,763	2,266
Other	1,586	2,057
Total	50,262	54,369

#### Energy balance, 2000

	GWh
Production	51,635
Consumption	54,369
Imports	6,026
Exports	3,292

#### Energy balance, 1999

	GWh
Production	47,497
Consumption	50,262
Imports	5,683
Exports	2,917

Kazakhstan's power generation industry is undergoing a challenging transformation from a centrally-planned to a free market economy. Currently, this sector of Kazakhstan's economy consists of three levels of transmission networks; power generating companies; wholesalers, and end-users of electric energy.

Transmission networks are divided into interregional, regional and local networks. The interregional include high voltage lines (1150, 500, and 220 kW) transmitting energy from producers to the largest regional networks and users. Regional level networks include 220 kW lines transmitting energy from interregional substations to smaller end-

users and redistribution enterprises (wholesalers). Local level networks supply energy to individual end-users and households.

Kazakhstan Electricity Grid Operating Company (KEGOC), created by the government of Kazakhstan in 1997, oversees management of all three network levels. KEGOC is 100% state-owned. KEGOC owns transmission networks and central and regional dispatch departments. Key functions of the company include transmission of electric energy from suppliers to wholesalers; development of the industry, its plans and technical policies, and the organization and technical operation of the wholesale electric energy market.

As of 2001, conceptually, the wholesale electric energy market is a free system of transmission of electric energy in accordance with contract terms among participants in the market. Participants include energy producers, the national electricity grid, regional transmission and redistribution networks, wholesale buyers, and other organizations working under centralized dispatch management allowing equal access to provided services.

The government of Kazakhstan has auctioned away more than 85% of power generation capacity. Despite the relatively stable overall level of electric power production, fluctuations in some of the regions have been significant. The main reasons for reduction of electric power production across Kazakhstan include fuel shortages, breakdown of obsolescent equipment, non-payment by end-users, and destruction and stealing of power cables, transformers, and other hardware.

Approximately 80% of Kazakhstan's energy generation is centered in the northern part of the Republic close to the Russian border, a holdover of the Soviet era. Power plants are mostly coal-fired, using coal shipped from the Ekibastuz and Karaganda regions. At the same time, the northern part of Kazakhstan is also the most significant user of electricity (nearly 70 percent of all electricity consumed in the country) because the vast majority of Kazakhstan's electricity-intensive heavy industry is located there.

About two-thirds of Kazakhstani electricity production is generated at coal-fired plants. The remainder comes from petroleum-fired plants and seven hydroelectric stations. Forty-six of Kazakhstan's 54 coal/petroleum-fired plants supply electricity, heating, and hot water to residences and industries during the winter. The remaining eight coal/petroleum-fired plants, the country's largest generating facilities, are devoted solely to electricity production.

Unlike power generation facilities, the vast majority of Regional Electric Companies (RECs) ensuring distribution of energy, have not been privatized. The process of privatization of RECs has moved much slower than expected, with tenders being frequently postponed. However, when the privatization process moves forward, it will represent a major strategic opportunity for U.S. suppliers and investors since most of the RECs are in very poor shape, with most equipment requiring urgent repairs and replacements.

Overall, 94% of Kazakhstan's gas turbines, 57% of its steam turbines, and 33% of its steam boilers have been in use for at least 20 years. Electricity transmission networks are inefficient, with losses during transmission and distribution accounting for approximately 15% of energy produced.

At the same time, construction of new power plants and expansion of power distribution networks is under discussion, and is likely to be implemented in the medium term. Consequently, it is possible to project steady growth of the market for a wide range of power generation and distribution equipment.

### Oil & Gas Industry and Equipment Market

In 2000, Kazakhstan's exports of crude oil reached 3.95 billion USD and constituted 43% of the total value of exports from Kazakhstan. During January-May 2001, exports of crude oil from Kazakhstan climbed to 1.65 billion USD amounting to 45% of total national export for the first five months of the year. In the first five months of 2001, oil production in Kazakhstan was 21% higher than in January-May 2000, reaching 14.33 million tons, while associated gas output during the reported period was up 12% over January-May 2000, at 204,166 tons. The Ministry of Energy and Natural Resources expects that in 2001 annual oil production will reach 40 million tons, up from 2000's 35 million tons. The Government of Kazakhstan confirms its plans to boost oil output to 80 million tons per year by 2005 and to 120 million tons by 2020. These plans are justified by estimates that Kazakhstan has proven oil reserves of 16 billion barrels and might have an additional 30 billion barrels both onshore and under its portion of the Caspian seabed.

Chevron, with its 50-percent stake, is leading the TengizChevrOil (TCO) venture, which was set up to develop the Tengiz oil field with participation from Mobil, KazakhOil, and LUKoil. Chevron and the Kazakhstani government have been working on the Tengiz project since 1992. Tengiz is one of the biggest oil fields in the world and may require up to \$20 billion in investment. In June 2001, TCO announced its plans to invest \$ 2 billion by 2005 to boost production at Tengiz field from 290,000 to 700,000 barrels per day.

The Offshore Kazakhstan International Operating Company (OKIOC), under a production sharing agreement signed in November 1997 with the government of Kazakhstan, conducts oil and gas exploration in the northern part of the Caspian Sea. Currently, OKIOC shares are owned by Eni SpA (14.3%), ExxonMobil (14.3%), Shell (14.3%), TotalFinaElf (14.3%), BP Amoco (9.5%), Philips Petroleum (7.1%), Japan National Oil Company (7.1%) and Statoil (4.8%). OKIOC completed drilling its first exploration well, and in June 2001 started to construct the a artificial island to be used for drilling of the second appraisal well. It is expected this drilling platform will be in place in October-November 2001. OKIOC plans to explore and develop 10 out of 200 blocks of Kazakhstan's portion of the Caspian Sea shelf, holding an estimated four billion tons of hydrocarbon reserves. OKIOC confirmed its plans to spend \$450 million over the first six years of operations.

Another production-sharing agreement was signed in 1997 between Kazakhstan and a consortium of British Gas, Agip, and Texaco to develop the giant Karachaganak oil and gas field in northwestern Kazakhstan. This project is expected to run through 2036, with oil and gas production capacity peaking at 12 million tons per year and 25 billion cubic meters per year respectively.

## TRANSPORT

The major challenge for land-locked Kazakhstan is to develop multiple reliable and cost-efficient routes to export its oil. Currently, Kazakhstan depends on its neighbors to transport its petroleum products to the world market. A major portion of Kazakhstan's oil exports passes through the Russian pipeline system, by rail through Russia to the Black Sea and the Baltics, and by barge across the Caspian to Baku.

In June 2001, Kazakhstan and Russia announced that they are developing a long-term agreement on the terms of oil transportation through the Russian Federation. The agreement will be signed in the near future.

Roughly 17 million tons of Kazakhstani crude will be exported via Russia in 2001. Through-put capacity of the Atyrau-Samara export pipeline to Europe will be increased to 15 million tons. However, some major shippers consider export via the Atyrau-Samara pipeline to be disadvantageous.

The year 2001 was marked by completion of the Caspian Pipeline Consortium's (CPC) construction works on the Tengiz-Novorossisk export pipeline. The Governments of Kazakhstan and Russia are signatories to the CPC agreement. The following petroleum companies are shareholders of CPC: Chevron, LukArco, Rosneft-Shell Caspian Ventures, Mobil, Agip, British Gas, Kazakhoil, and Oryx. The first tons of Kazakhstani crude were pumped into the pipeline at an official ceremony in March and crossed the border with Russia on June 8. However, unexpected setbacks delayed the arrival of the oil at the Russian port of Novorossisk. Completion of upgrades (probably not before 2005) would boost capacity of the pipeline to 67 million tons per year.

Kazakhoil, Kazakhstan's national oil and gas company, implements its own exploration and production program - a major block of which consists of independent appraisal and possible production drilling in the northern part of Caspian Sea. Kazakhoil's first appraisal wells were drilled in Caspian offshore structures in 2001, and it remains to be seen how successful these projects will be.

Kazakhoil is also responsible for arranging tenders of oil and gas properties still to be privatized (although licenses for projects are issued by the State Agency for Investments) and plays the leading role in practically all projects with participation of foreign oil and gas companies. Kazakhoil's portfolio includes Kazakhstan's share of CPC and the TengizChevrOil joint venture. In January-April 2001, Kazakhoil and its affiliates extracted 2.06 million tons of oil and gas condensate, exceeding anticipated production by 5.7% and besting 1999 output by 11.8%. Nine oil production enterprises with

Kazakhoil participation turned out a total of 4.65 million tons of oil, falling short of expectations by 0.9%, while producing 34.1% more than in January-April 2000.

In May 2001, the government of Kazakhstan decided to form a unified national oil & gas transportation company, TransNeftGaz. The company's charter gives it 100% of state shares in KazTransOil, KazTransGaz and shipping company Kazmortransflot; 90% in Aktobeneftsvyaz, a 99% share in Munay-Impex, 90% in KazTransSvyaz, and a 100% share of Atyrau International Airport. Key roles of the newly created company include management of the existing oil & gas transportation infrastructure, planning, and attracting resources for further development of oil & gas shipment routes to meet growing demand. The former head of the national oil transportation company, KazTransOil, Mr. Timur Kulibaev, was appointed to the position of the Chief Executive Officer of the new company.

During the first four months of 2001, the western regional affiliate of KazTransOil transported 7.8 million tons of oil, up from 5.9 million tons transported during the same period of 2000. In January-April 2001, over 4.6 million tons of oil were transported via the Atyrau-Samara pipeline, as opposed to 3.3 million tons transported in January-April 2000. Sea transportation of oil increased from 800,000 tons in the first four months of 2000 to 1.4 million tons during the same period in 2001. Rail transport of oil decreased from 1.08 million tons in January-April 2000 to 970,000 tons during the same period of 2001.

Kazakhstan has three oil refineries: Shymkent, Pavlodar, and Atyrau. In 2000, Hurricane Kumkol Munai acquired Shymkent refinery. Atyrau refinery is under the control of the national oil company, Kazakhoil. Currently, Atyrau refinery processes about 5 million tons of oil per year. In May 2001, a \$ 300 million agreement was signed with Marubeni of Japan to modernize Atyrau refinery, the oldest facility of this type in Kazakhstan. Pavlodar refinery plans to rebound from a disastrous 2000 (when only 600,000 tons of oil were processed during the entire year), to process 2.4 million tons of oil in 2001. Shymkent refinery currently operates at about 35% of capacity and according to estimates provided by Hurricane Kumkol Munai, processes up to 16 million barrels per year.

Oil and Gas Sector Statistics for oil and gas equipment in \$ millions:

	1997	1998	1999	2000	2001 (est.)
Total market size	860	960	1,000	1,100	1,230
Total local production	N/a	n/a	n/a	22	32.4
Total exports	N/a	n/a	n/a	10.3	11.5
Total imports	860	960	1,000	1,090	1,200
Imports from the U.S.	12.8	23	25	30.2	62.4

#### **IV. Major Procurements or Private Projects on the Horizon (next 18-36 months)**

One of the keystones defining development of Kazakhstan's electricity grid is represented by the Kazakhstan Electricity Grid Rehabilitation Project, implemented by KEGOC and financed by the International Bank for Reconstruction and Development. The project should be implemented by 2005. Major elements of the project include:

1. Modernization of substations (switches, power transformers, basic isolators and accumulating batteries, etc.)
2. Upgrade of relay protection at most KEGOC substations (upgrade of relay protection will be combined with installation of Remote Terminal Units to be used by a SCADA system)
3. Modernization of dispatch control, including purchase and installation of SCADA/EMS system, digital corporate telecommunications network, commercial record keeping system, and a trading system
4. Organizational development of KEGOC, including development, shipment, and installation of a Management Information System
5. Technical assistance, including designation of the main project consultant and technical consultants for each project component.

Procurement for the project is by tenders for specific components under the oversight of the World Bank. U.S. companies can use the opportunity and participate in the following major tenders that will be announced in 2001-2002: 1. Energy trading system (May-June 2002); 2. Satellite communication network (September 2001); 3. Corporate information network (October 2001); 4. Commercial record keeping system (October 2001); 5. Management Information System (February 2002).

## **V. Major Trade Events**

KIOGE – Kazakhstan International Oil & Gas Conference

An annual event: October 3-4, 2001

Organizer: International Trade Exhibitions (ITE Group PLC)

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## **VI. Country's Methods of Procurement**

All government procurement above USD 50,000 is by tender.

## **VII. Means of Financing Procurements**

Lack of domestic capital resources in the energy sector of Kazakhstan has prompted International Bank for Reconstruction and Development to finance the Kazakhstan Electricity Grid Rehabilitation Project. Privatized electric energy production companies have their own procurement plans, depending on the needs and financial resources of each individual company. Virginia-based AES, the owner of several Kazakhstani power plants, including Ekibastuz GRES-1, has been one of the major investors in Kazakhstan, spending as much as 150 million USD for equipment purchases.

In the oil & gas sector, the rise of world oil prices and increased oil production volumes in Kazakhstan, provide national and international companies working in Kazakhstan with additional cash reserves prompting them to expand procurement plans.

## **VIII. Points of Contact**

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Note: Offshore exploration